



# OPERATOR'S MANUAL

JETTER TRAILER/PRESSURE WASHER COMBO  
Gas & Diesel Engine Models

## READ THIS MANUAL

This manual contains important information for the use and safe operation of your RAMTEQ™ machine. **FAILURE TO READ THIS MANUAL AND FOLLOW ITS INSTRUCTIONS PRIOR TO OPERATING OR ATTEMPTING ANY SERVICE OR MAINTENANCE PROCEDURE COULD RESULT IN SERIOUS INJURY OR DEATH TO YOU OR OTHER PERSONS; ALSO DAMAGE TO THE MACHINE OR TO OTHER PROPERTY.**



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## Unpacking Instructions

### INSPECTION

Carefully unpack your new RAMTEQ equipment by removing the shrink wrap & banding from pallet. Remove the pressure washer from the pallet and check for any physical damages that may have occurred during shipment. Check for all parts specified and shown in figure 1.



#### INCLUDED PARTS

- Jetter/Pressure Washer Combo Trailer Unit
- Jetter & PW Accessories
- Certificate of Origin
- Operator's Manual

Figure 1

### NOTICE

Information in this operator's manual is subject to change without notice.

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## Safety Guidelines



**READ THIS FIRST! FAILURE TO READ AND OBSERVE ALL WARNING STATEMENTS COULD RESULT IN SEVERE BODILY INJURY OR DEATH, POSSIBLE INJURY TO OTHER PERSONS, DAMAGE TO MACHINE OR OTHER PROPERTY.**

- Always wear protective safety gear, such as, but not limited to rain coats or coveralls, rubber boots, face shield or goggles, gloves and hearing protection.
- DO NOT operate this machine in areas where open flames are not permitted. DO NOT store or use combustible materials on or near this machine. Use this equipment only in well ventilated areas. Failure to follow this warning may cause carbon monoxide build up, fire or explosion, and possible injury or death.
- DO NOT fill gasoline tank while engine is running. Allow engine to cool before refueling. Should gasoline be spilled, move the machine away from the area of the spill. Do not attempt to restart the machine until the gasoline has fully evaporated.
- DO NOT operate engine if air cleaner or cover directly over the carburetor air intake is removed.
- DO NOT touch hot mufflers, cylinders or fins, as contact may cause burns
- DO NOT operate this machine while under the influence of alcohol, drugs or while fatigued.
- DO NOT direct discharge stream at yourself or others. Risk of injection or injury may occur. Never put your hand or fingers over the spray tip. Do not try to stop or deflect leaks with your hand or body. Always face nozzle and wand to the ground when testing.
- DO NOT operate this machine WITHOUT wearing protective Eye Wear. Gloves, Hard Hat, Mask, Ear Plugs & Steel Toe Work Boots are also recommended, DO NOT wear loose clothing. Keep your body and clothing clear of the engine and discharge stream when the machine is running.
- DO NOT tie back or block trigger gun in OPEN position. Never leave the pressure washer unattended once you have started it. If you leave, shut down machine completely.
- DO NOT overreach or stand on an unstable support while operating this machine. Maintain good footing and balance.
- DO NOT permit this machine to run while unattended or for extended periods of time with trigger gun closed. Damage to pump may occur.
- DO NOT operate this machine in an unsafe manner or around unsupervised children. Keep all other personnel clear while operating this machine. This product should only be operated by trained personnel.
- DO NOT alter original factory settings prior to operating this machine. Risk of injury to yourself or other persons may occur.
- DO NOT remove hoses, guns, nozzles or any components while this machine is still hot or while it is running.
- DO NOT attempt to service this machine before reading the service manual.
- DO NOT use water with a temperature over 140 degrees Fahrenheit
- DO NOT operate this machine without knowing how to stop and bleed water pressures. Know all controls before using this machine.
- DO NOT spray caustic, acids or abrasive fluids through this machine.
- DO NOT permit water to freeze inside this machine. Pump and plumbing damage may occur.
- Use only recommended RAMTEQ™ parts when servicing this machine.
- RAMTEQ™ will not be held liable for any unauthorized modifications made to this machine. Any such action will void the warranty.
- Although the trailer has been engineered to carry the full weight of the the equipment plus a full water tank, RAMTEQ™ recommends that the trailer only be towed with an empty tank. Failure do do so may violate state and local law; RAMTEQ is not liable for any accidental damage or fines incurred in such a situation.
- When connecting battery, ensure that the RED battery cable is connected to the POSITIVE pole on the battery and the BLACK is connected to the NEGATIVE pole on the battery.



## Operating Instructions

### LOCATION GUIDELINES

- Locate the machine on a solid and level surface so that engine and pump crankcase oil lubricate components properly. Avoid areas where water can build up in the working area. Possible injury can occur caused by the surface becoming slippery from water build up.
- Locate the machine in a well-ventilated area and away from flammable materials or fumes. Be sure ventilation warnings are observed. Keep pressure washer at least 18" away from flammable materials.
- Locate the machine so the operator has easy access to the jetter/pressure washer and its controls. Locate the machine so that it is protected from external damage.
- To prevent damage and excessive hose wear, locate the unit so that the hose does not cross traffic areas.

### STARTING THE MACHINE

**Following the steps below will insure successful operation:**

- Read this manual completely before attempting to start the machine.
- Check the fuel tank and fill with a good grade of gasoline (87 octane minimum) for gas engines and a high quality diesel fuel for diesel engines.
- Check the engine oil level and fill per the manufacturers recommendation.
- Check the pump oil level and fill with appropriate pump oil per the manufacturers recommendation.
- Check water tank to ensure adequate level of water required for the job.
- Slide fuel switch to the RIGHT and slide choke switch to the LEFT (closed position).
- Turn ON/OFF switch (on engine) to "ON".
- Open water flow to reduce back pressure in pump. Back pressure can overpower electric starter, preventing ignition.
- Pull trigger on gun until a steady stream of water comes out the nozzle. This purges any air in the system.
- Turn key to start gas engine and allow RPM to develop.
- Let engine warm up for approximately 30 seconds and slide choke to "OPEN" position.
- Check for leaks in the system and cycle trigger gun to insure bypass is adjusted correctly. Repair any leaks if needed. Turn off machine before attempting any repairs.
- **WARNING** - Do not operate machine with less than 6" of water in the tank. Doing so may cause pump damage!

### STOPPING THE MACHINE

- Turn engine to "OFF".
- Pull gun trigger to release water pressure from system.
- Disconnect wand & gun assembly. Return to wand holder if so equipped.
- Wind up pressure hose on hose reel.

- **For Jetting, procede to page #6: Jetting Setup Page .**
  - **For Presuure Washing , procede to page #5: Pressure Washing Setup Page.**



## PRESSURE WASHER SETUP

### STARTING THE MACHINE

Following the steps below will insure successful operation:

- Turn the (optional) tank dump ball valve (BV#3) to the "CLOSED" position.
- Connect customer supplied garden hose to water supply and fill tank.
- Turn the pressure washer to hose reel lever valve (LV#3) to the "OPEN" position
- Make sure antifreeze ball valve (BV#1) is in the "CLOSED" position.
- Turn the pulsation valve lever to the constant flow position
- Turn the jetter hose reel lever valve (LV#1) to the "CLOSED" position.
- Turn the main water supply ball valve (BV#2) into the "OPEN" position
- Connect gun/wand/tip to end of pressure washer hose at pressure washer hose reel.
- (Optional) Chemical injector can be quick coupled into high pressure line at outpost of unloader valve. Use black chemical tip to activate chemical injector.
- Start engine (see earlier instructions).
- Pull trigger gun to start water flow.
- Set desired pressure with black unloader knob located on pump.
- Start pressure washing.

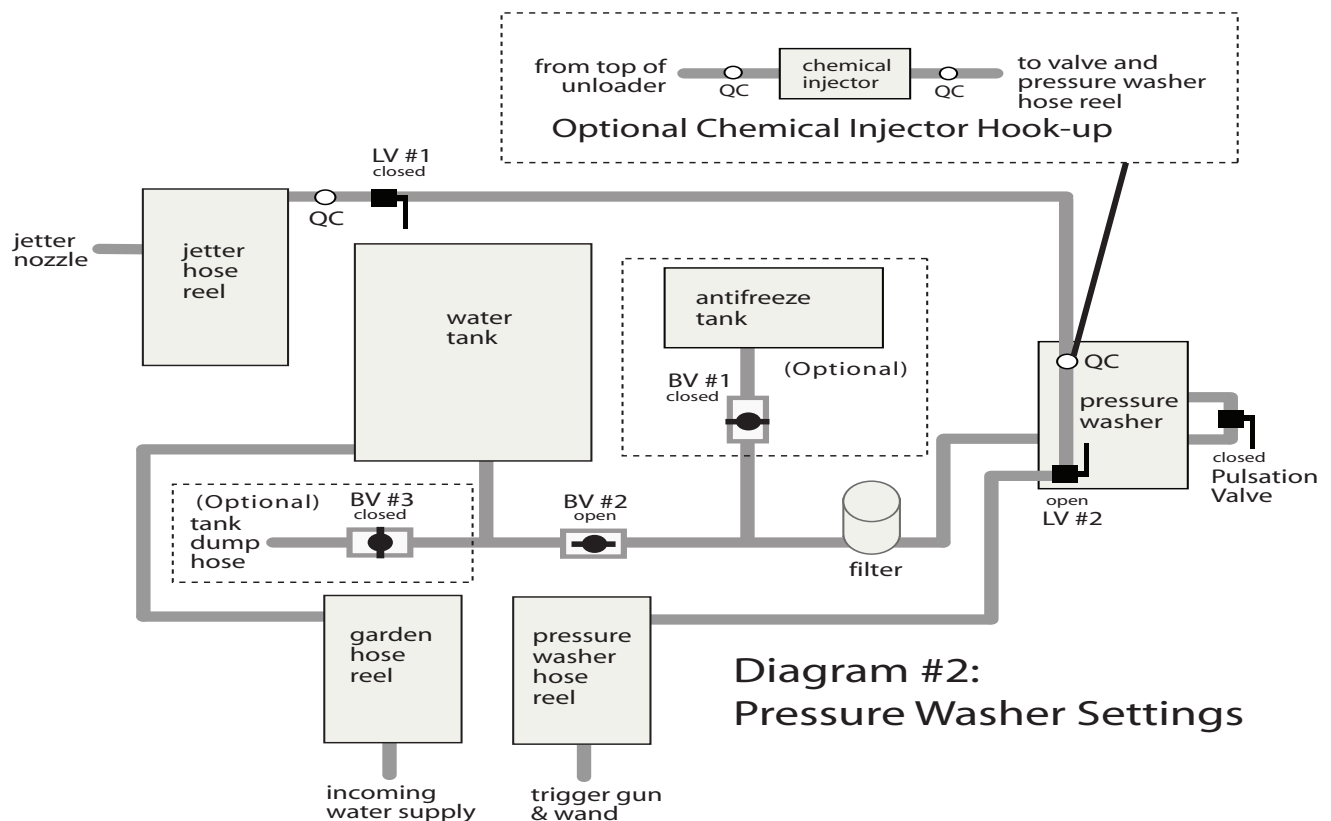


Diagram #2:  
Pressure Washer Settings



## IMPORTANT JETTER INFORMATION

The Sewer Jetter is a specialized piece of high pressure cleaning equipment designed to remove blockages and build up from drain and sewer lines. The Sewer Jetter is designed to operate in a constant flow or pulsed flow mode and utilizes specific hoses and pressure nozzles to accomplish its intended task.

### Flow Modes

- Constant Flow Mode provides a steady stream of water to break through blockage in the pipe.
- Pulsed Flow Mode delivers full pressure and flow cycled constantly by no pressure or flow causing a pulsing action at the pressure nozzle

### Jetter Hoses

SewerHose is a specialized pressure hose designed with extra strength to be able to be pushed or pulled through a pipe to assist in removing a blockage. The outer cover of the hose is made of a material that is chemical resistant and smooth to move easily inside the pipe and to be cleaned upon removal from the pipe. It is necessary to select the proper size hose depending on the pipe to be jetted.

- 1/8" jetter hose = 1" - 4" ID pipe.
- 1/4" jetter hose = 2" - 6" ID pipe.
- 3/8" jetter hose = 4" - 10" ID pipe.
- 1/2" jetter hose = 8" - 12" ID pipe.

### Jetter Nozzles

Jetter Nozzles are designed to draw the sewer hose into the sewer line. There are 2 primary types of sewer nozzles.

- Laser Nozzle – uses a pressure nozzle on the tip to penetrate and cut the blockage from the line.
  - Works best with the sewer jetter in constant flow mode.
- Ram Nozzle – uses a blunt end on the nozzle to punch through blockage.
  - Works best with the sewer jetter in pulses flow mode.

### Caution

- Never start the machine with the jetter nozzle outside the drain.
- Do not remove the jetter nozzle from the drain while the unit is under pressure.



## JETTER SETUP

### STARTING THE MACHINE

Following the steps below will insure successful operation:

- Turn the optional tank dump ball valve (BV#3) to the "CLOSED" position.
- Connect garden hose to water supply and fill tank.
- Turn the pressure washer hose reel ball valve (LV#2) to the "CLOSED" position.
- Make sure antifreeze ball valve (BV#1) is in the "CLOSED" position.
- Turn the main water supply ball valve (BV#2) into the "OPEN" position.
- Turn pulsation valve to pulse or constant position.
- For ball valve water flow jetting operation: connect high pressure hose from machine to jetter hose reel. Use jetter ball valve open/close to control jetter water flow.
- (Optional) Foot valve water flow jetting operation: disconnect high pressure hose at jetter hose reel quick connect. Attach foot valve using quick connects into high pressure line. Open lever valve and use foot valve to control water flow.
- Roll jetter hose onto electric jetter hose reel. Hose should be installed to roll off top of reel.
- Install desired jetter tip. (Tighten with box or crescent wrench)
- Put at least 4 feet of jetter hose into drain line to be cleaned.
- Start engine (see earlier instructions on page 5).
- Hold jetter hose with a firm grip.
- Start water flow and set desired pressure.
- Start jetting.

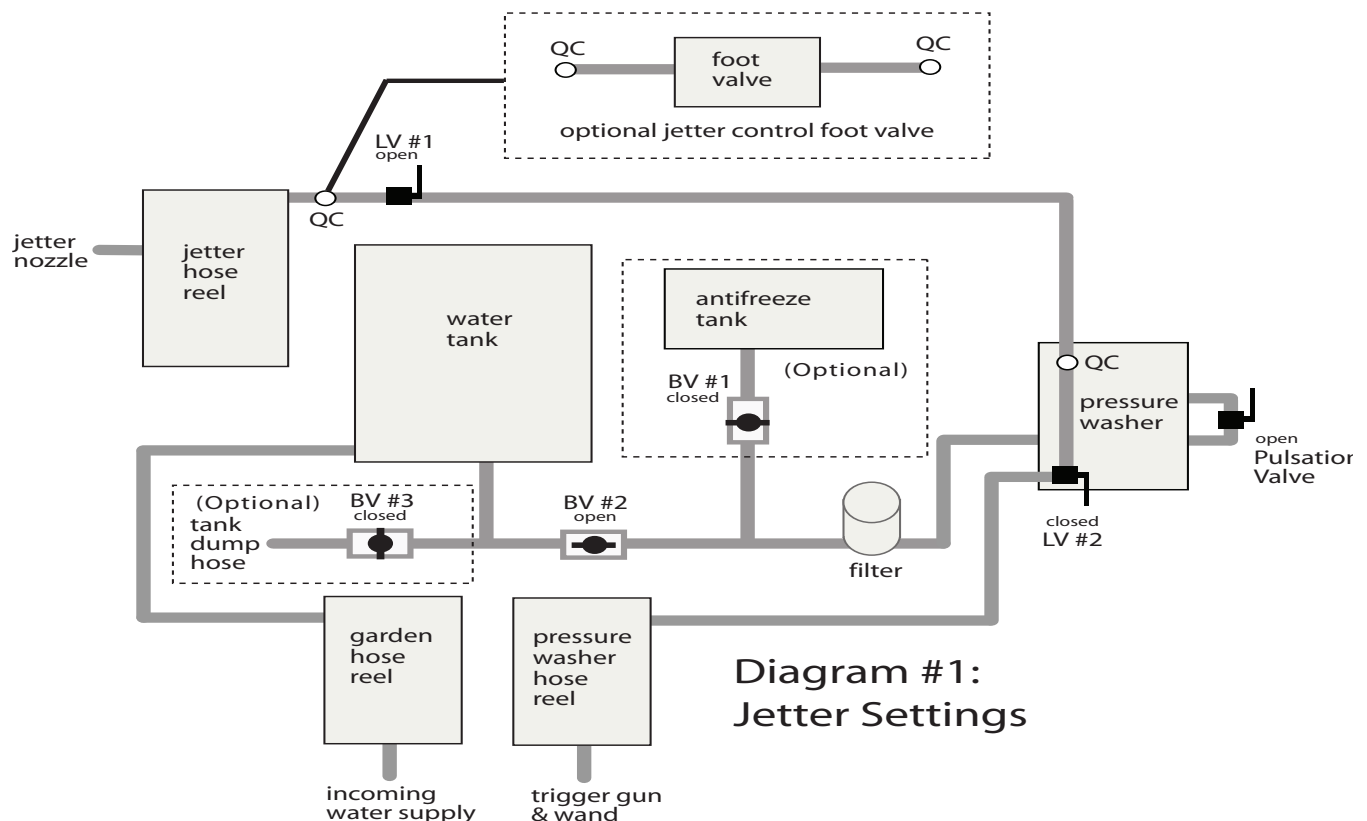


Diagram #1:  
Jetter Settings



## Maintenance Instructions

### MOVING, STORAGE

- Place machine in covered area when not in use to protect from elements. Protect machine from freezing in cold temperatures by storing in a heated location.

### TRAILER MAINTENANCE

- Daily: Check wheel bearings. Add grease if necessary.
- Daily: Check tires for proper inflation.
- Daily: Check trailer for loose equipment. Tighten if necessary.

### ENGINE MAINTENANCE

- Every time (before start): Check oil level.
- First 8 hours: Change oil with **SAE 10W-30W**.  
(If temperature is above 40 deg F change with SAE 30W HD)
- Every 25 hours: Change oil if operating under heavy load or high ambient temperature.  
Service air cleaner pre-cleaner.
- Every 50 hours: Change oil. Clean and inspect spark arrester if equipped.
- Every 100 hours: Service air cleaner cartridge, replace oil filter (if equipped),  
Clean oil cooler (if equipped), Clean cooling system.

### PUMP MAINTENANCE

- Fill crankcase to dot on oil gauge window per specifications with the specific oil created by the pump manufacturer (i.e. **General Pump Oil**). Ensure the right oil for specific pump as it may vary.
- Change oil after **25 Hour Break-in Period**.
- Change oil every **Season or at 150 Hour Intervals** thereafter.

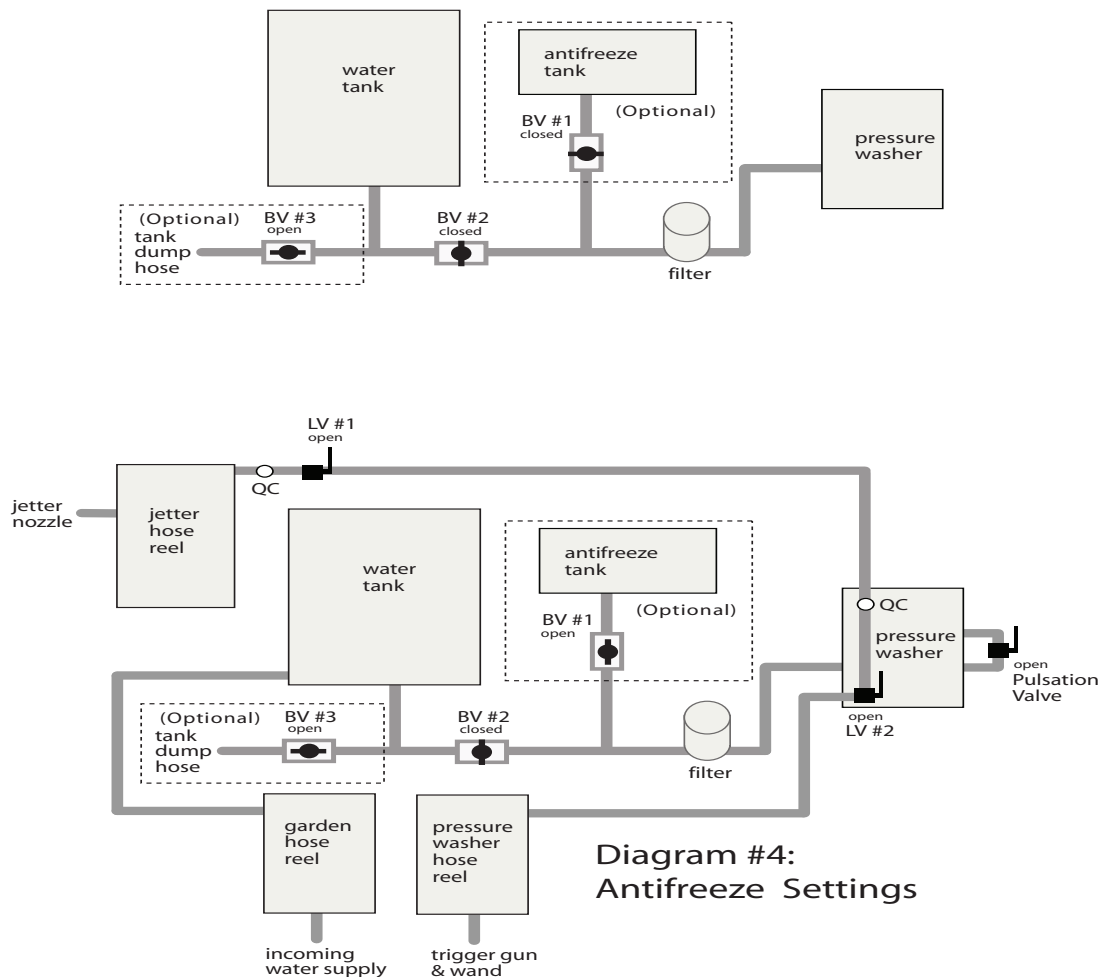


**WINTERIZING MACHINERY****WINTERIZING WITHOUT OPTIONAL ANTIFREEZE KIT**

- Run the machine to run all the water out of the tank.
- Ensure tank is empty.
- Pour antifreeze mixture into water tank.
- Make sure all other valves are open.
- Start engine.
- Flow antifreeze thru pump, all lines, and all hose reels, ensuring there is no water left in the system.

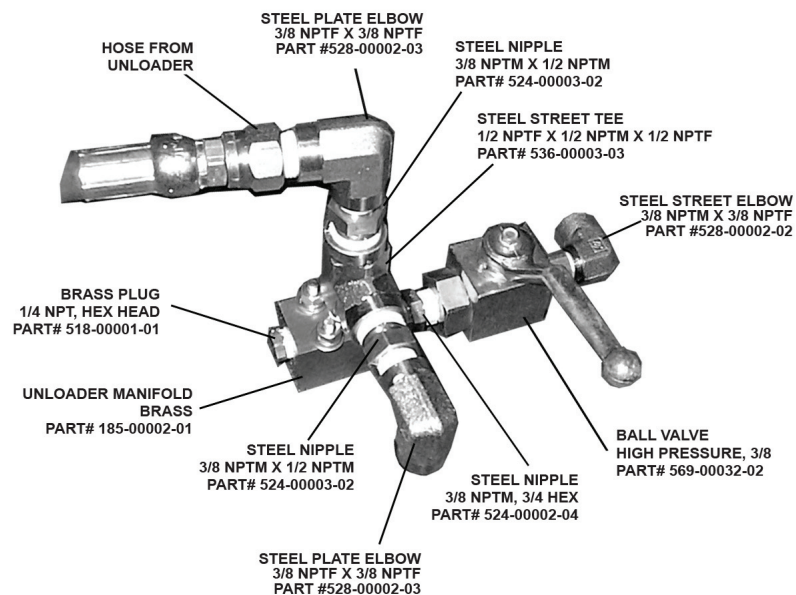
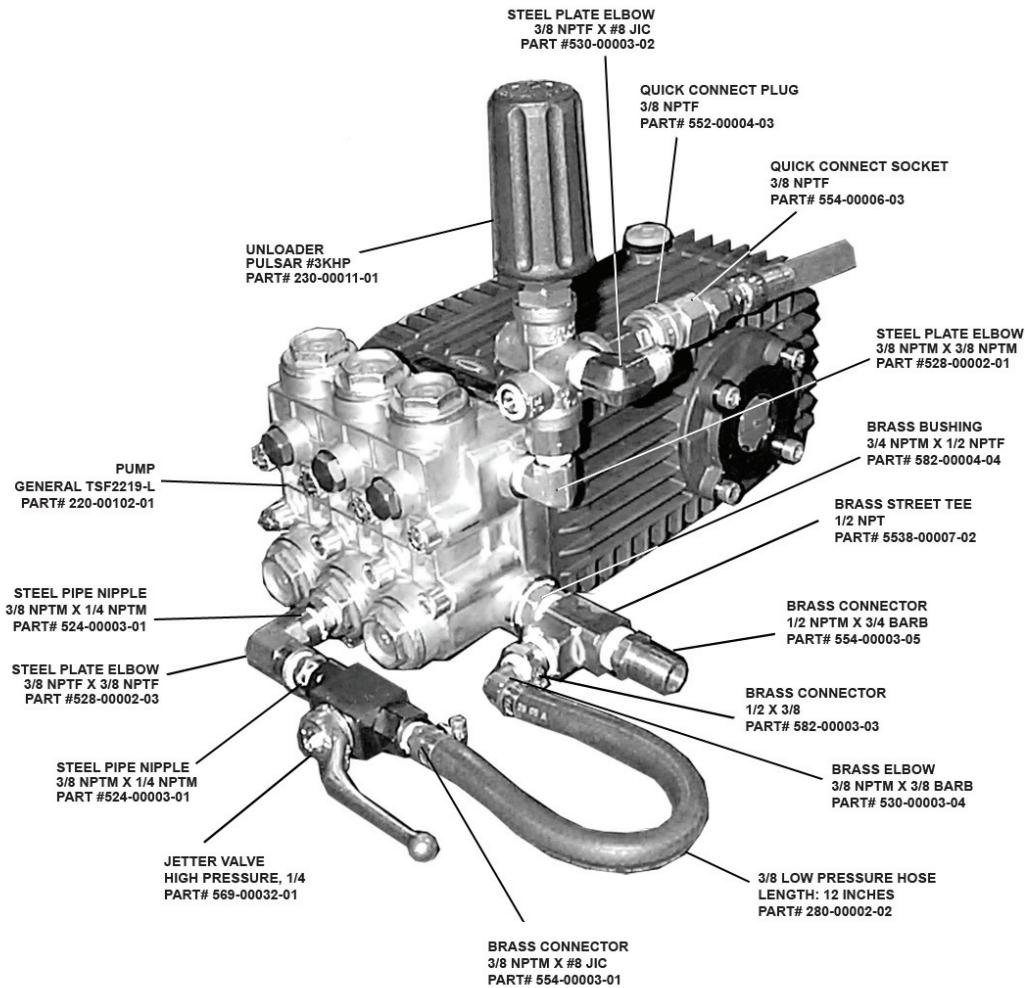
**WINTERIZING WITH OPTIONAL ANTIFREEZE KIT**

- Turn the tank dump ball valve (BV#3) to the "OPEN" position and drain tank.
- After draining, turn ball valves water supply ball valve (BV#2) to the "CLOSED" position
- Ensure there is antifreeze mixture in antifreeze tank.
- Turn the tank antifreeze tank ball valve (BV#1) to the "OPEN" position
- Start engine.
- Flow antifreeze thru pump, all lines, and all hose reels, ensuring there is no water left in the system.



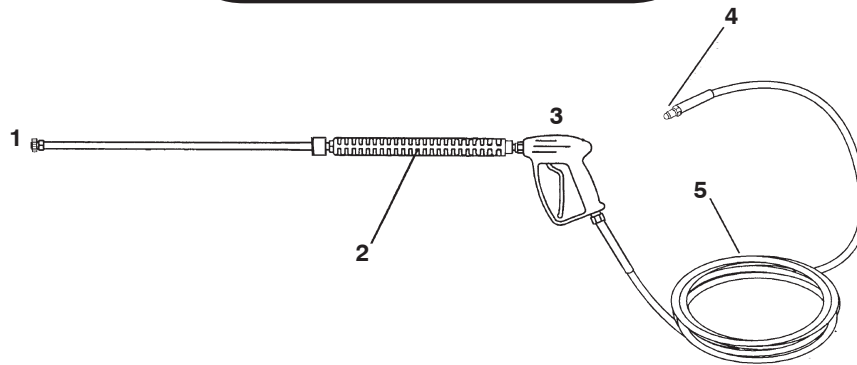


## Plumbing Diagrams





### Hose, Wand & Gun



Ref.#	Part #	Description	Qty.
1a	270-00011-01	Nozzle, Water #5.5 0°	1
1b	270-00011-02	Nozzle, Water #5.5 15°	1
1c	270-00011-03	Nozzle, Water #5.5 25°	1
1d	270-00011-04	Nozzle, Water #5.5 40°	1
2	265-00001-01	36" Wand, Insulated	1
3	275-00001-01	ST1500 Trigger Gun	1
4	552-00003-03	3/8" Quick Connect, Male	1
5	284-00001-01	Hose 3/8" X 50" R-1 Swivel Ends	1

### Belt Drive Pump

General Pump TSF2219-L Triplex Plunger Pump



Ref#	Part#	Description	Qty.
1	220-00102-01	TSF2219-L Triplex Plunger Pump Complete (BV500,600)	1
2	221-00001-02	Manifold, Brass Head	1

#### Pump Repair Kits (Not Shown)

Part #	Description	Qty.
221-00002-01	Check Valve Assembly Kit #1	6
221-00018-01	Oil Seal Kit #2	3
221-00026-01	Oil Ring and Valve Cap Kit #5	6
221-00010-01	Head Packing Complete Kit #28	1



### Troubleshooting

problem	cause	action
Low Water Pressure	Insufficient water source Old or incorrect nozzle Plumbing or hose leak Obstruction in spray nozzle Chemical valve open Unloader valve worn Pump valves dirty or worn	Check hose size/water source Replace nozzle Tighten, repair or replace leak Clean or replace nozzle Close valve or submerge hose Replace unloader Clean or replace packing/valves
No Chemical Flow	Detergent valve closed Low detergent level Chemical screen dirty	Open detergent valve Fill detergent container Clean detergent screen
Pressure Relief Valve Leaks	Nozzle is dirty Defective relief valve Unloader adjusted incorrectly Restriction on discharge hose Scale restricting flow in coil	Clean or replace nozzle Replace relief valve Adjust unloader valve Remove nozzle and flush line Clean coil
Pump Motor Not Running	Pump motor switch off GFCI tripped No voltage to machine Clogged water nozzle Insufficient voltage/ampereage	Turn on pump motor switch Reset and test GFCI Check power source Clean water nozzle Use proper drop cord
Pump Noisy	Air in suction line Pump valves dirty Check valve springs worn Low pump oil Pump bearings are worn Incoming water too hot	Check inlet water fittings Clean/replace pump valves Replace check valves Add SEA 30wt. non-detergent Replace/rebuild pump Reduce temperature/ambient
Water In Oil	High humidity environment Oil seal worn Plunger packing worn	Change oil frequently Check and replace oil seal Check and replace packing
Water Dripping/Pump	Plunger packing is worn Plunger retainer oil ring worn Cracked ceramics	Install new packing kit Replace oil ring Replace ceramics
Oil Dripping	Oil seal worn Cracked manifold	Check and replace oil seals Replace manifold
Fluctuating Pressure	Unloader not adjusted Valves worn Dirt or blockage in valve Pump sucking air Worn plunger packing	Adjust to specifications Replace with valve kit Clean or replace valve Check water/detergent supply Replace packing kit
Pump Head Overheating	Extended period in bypass	Pull trigger gun for water flow

## Limited One Year **WARRANTY**

Ramteq Incorporated ("RAMTEQ") warrants that the Product you have purchased from RAMTEQ or from an Authorized RAMTEQ Reseller is free from defects in materials or workmanship under normal use for a period of one (1) year from the date of purchase. This warranty extends only to you, the original Purchaser. It is not transferable to anyone who subsequently purchases the Products from you. This warranty specifically excludes expendable items, including but not limited to hoses, seals, nozzles and gunjets. RAMTEQ manufacturers warrant certain components of the Products for periods greater than one (1) year. MOTORS, GENERATORS, PUMPS, COILS, BURNERS AND ENGINES ARE WARRANTED BY THEIR RESPECTIVE MANUFACTURERS, AND SERVICED THROUGH THESE MANUFACTURERS' LOCAL AUTHORIZED SERVICE CENTERS. Specific warranty details can be found on the individual manufacturers website. RAMTEQ CANNOT PROVIDE WARRANTY ON THESE ITEMS.

During the warranty period, RAMTEQ will repair or replace defective parts, at the option of RAMTEQ.

This limited warranty does not extend to any Product not purchased from RAMTEQ or from an Authorized RAMTEQ Reseller. This limited warranty also does not extend to any Product that has been damaged or rendered defective (a) as a result of accident, misuse or abuse; (b) by operation outside the specifications in the intended applications; (c) by the use of parts not sold or manufactured by RAMTEQ; (d) by the modification of the Product.

### Warranty Disclaimer

EXCEPT AS EXPRESSLY SET FORTH IN THIS WARRANTY, RAMTEQ MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. RAMTEQ EXPRESSLY DISCLAIMS ALL AND ANY WARRANTIES NOT STATED IN THIS LIMITED WARRANTY. ANY IMPLIED WARRANTIES THAT MAY HAVE BEEN IMPOSED BY LAW ARE LIMITED TO THE TERMS OF THIS EXPRESS LIMITED WARRANTY.

### Limitation of Remedy

RAMTEQ IS NOT LIABLE FOR ANY DAMAGES CAUSED BY THE PRODUCT OR FAILURE OF THE PRODUCT TO PERFORM, INCLUDING INCIDENTAL AND CONSEQUENTIAL DAMAGES. THIS LIMITATION APPLIES WHETHER DAMAGES ARE SOUGHT, OR A CLAIM MADE, AS A CONTRACT CLAIM, AS A TORT CLAIM, OR ANY OTHER CLAIM.

THIS LIMITATION OF LIABILITY, HOWEVER, WILL NOT APPLY FOR PERSONAL INJURY.

### U.S.A. State Laws

Some states do not allow limitation on how long an implied warranty lasts. In such states, the limitations or exclusions of this Limited Warranty may not apply to you.

Some states do not allow the exclusion or limitation in incidental or consequential damages for consumer products. In such states, the exclusion may not apply to you. This limited warranty gives you specific legal rights. You may also have other rights that may vary from state to state. You are advised to consult applicable state laws for a full determination of your rights.

### How to Obtain Warranty Service

TO OBTAIN WARRANTY SERVICE YOU MUST CONTACT RAMTEQ or an AUTHORIZED RAMTEQ RESELLER.



## Manufacturers Warranty Period

Click on pictures to open manufacturers website.



5 years



5 years



3 years



3 years



3 years



18 months

M&M Manufacturing Co. Inc.

3 years



18/36 months



1 year